

**ABSTRACT**

The present invention relates to ionic electrodes, particularly microelectrodes and electrode arrays, and also relates to fabrication methods for such electrodes. In particular, the present invention relates to planar polymer electrodes for making patch clamp measurements of ionic currents through biological membranes, such as the plasma membranes of living cells. The electrodes of the present invention are useful for measuring individual and multisite cell membrane currents and voltages, as well as in high-throughput screening procedures.